ON THE SUPPOSED NORTH AMERICAN TRACHODINAE (COLEOPTERA: CURCULIONIDAE)

By Elwood C. Zimmerman[1]

While working on a problem concerning Indo-Pacific weevils, I have had to study the "Trachodinae" of the world, and I have found that the species assigned to this subfamily in America do not belong to it. Instead of having the results of my study of the North American species immersed entirely in my Pacific monographs, I have thought it best to present these few notes where they will be easily available to North American students.

This work was accomplished during the tenure of National Science Foundation research grant G-18933, "Pacific Island Weevil Studies," for which I am most grateful. I am also indebted to Rose Ella Warner Spilman who assisted me in this study at the United States National Museum, and for arranging for the loan of specimens from that institution, and to the Museum of Comparative Zoology, Harvard University, for use of their excellent library and for permission to study the great collections of LeConte and Fall.

LeConte (1876:190) erected the "Tribe Trachodini" for the genus *Trachodes* Germar, and in it he placed the following three species: *Trachodes ptinoides* Germar, 1824, *Trachodes quadrituberculatus* (Motschulsky, 1845) Mannerheim, 1852, and *Trachodes horridus* Mannerheim, 1852. Unhappily, none of these species belongs to *Trachodes*. Thus, the characters upon which LeConte based his "Trachodini" do not agree with the type genus, *Trachodes*.

The three species named above were listed in *Trachodes* by G. R. Crotch in his "Check List of the Coleoptera of America North of Mexico," 1873, and repeated in E. P. Austin's "Supplement" to that work in 1880. In 1885, the three species again were catalogued similarly by Samuel Henshaw in his "List of the Coleoptera of America, North of Mexico." None of these references listed localities or gave bibliographic notes, but that information was then to be found in the Gemminger and Harold "Catalogus Coleopterorum," 1871, where the species are also listed under *Trachodes*. After a lapse of 35 years from the publishing of Henshaw's catalogue, the "Leng Catalogue" appeared in 1920, and there we find *ptinoides* and *quadrituberculatus* under *Trachodes* and *horridus* under *"Aparapion."* These are placed in the "Trachodini" which is situated between the "Erirhinini" and the "Tychini." Various errors were made in these listings. The "Trachodini" are not allied to the groups between which they were placed; *Trachodes quadrituberculatus* is credited to Mannerheim instead of to Motschulsky, and *"Aparapion"* is a misspelling for *Aparopion*. No authority for the transfer of *horridus* to *Aparopion* was given, but it was Heyden, 1879:167.

In 1936, L. L. Buchanan, a devoted and excellent worker, wrote a paper entitled "Systematic Notes on the Trachodinae." Buchanan demonstrated that none of the species we are concerned with belongs to *Trachodes*

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(whose type was designated by Schoenherr in 1826 as the European *hispidus* Linnaeus). Buchanan resurrected *Sthereus* Motschulsky, 1845 (which incorrectly had been synonymized with *Trachodes* by Lacordaire, who had not seen specimens of the genus), for *quadrituberculatus* Motschulsky (which Buchanan designated type of *Sthereus), ptinoides* (Germar) and a new species, *multituberculatus* Buchanan. Buchanan created a new genus, *Lobosoma,* for *Trachodes horridus* Mannerheim, and he also erected a new allied genus, *Gastrotaphrus,* for *barberi,* a new species. Peculiarly, Buchanan did not describe his *Lobosoma,* although he gave a lengthy description of *Gastrotaphrus.* He said of *Lobosoma* only: "LOBOSOMA, new genus. *(Aparopion* of American lists, not Hampe.)". Unfortunately, the results of Buchanan's studies were not included in Schenkling and Marshall's "Coleopterorum Catalogus," pars 154, Trachodinae, 1937.

Further confusion exists in literature because of some errors made by Sir Guy Marshall. In 1932:344, Sir Guy referred *Sthereus* and *Trachodes* to the Trachodinae. (Bedel, 1884:92, footnote, had earlier stated that *"Stereus"* [*sic*] belonged to the "Trachodini," and he gave characters to separate it from *Aparopion* with which some authors had merged it.) The Marshall usage was followed by Schenkling and Marshall in 1937, in "Coleopterorum Catalogus," pars 154, Trachodinae, but there the confusion is compounded further, because *Sthereus* is erroneously placed as a synonym of *Trachodes.* In 1948:427, Marshall continued to be confused by considering *Sthereus* to be a synonym of *Trachodes* and incorrectly believing the type of *Trachodes* to be *ptinoides.* He noted then that *ptinoides* is a hylobiid, and he erected a new genus, *Metrachodes,* for *hispidus* (Linnaeus) and other species which he assigned to the Acicnemidinae. Evidently, he discovered his errors when his paper was in page proof, because there is a footnote beneath his description of *Metrachodes* stating, correctly, that the type of *Trachodes* is *hispidus,* and therefore his *"Metrachodes* falls as a synonym of *Trachodes."* [Morimoto has failed to note this synonymy, and he uses *Metrachodes* incorrectly for *Trachodes subfasciatus* Voss, in his recent "Preliminary Check List of the Families Curculionidae (II) and Rhynchophoridae of Japan," of 1962.]

The original purpose of this paper was to demonstrate that not only do none of the American species discussed belong to *Trachodes,* but none of them belong to the "Trachodinae." They are all flightless Hylobiinae. Hence, the subfamily "Trachodinae" should be deleted from the American faunal lists, and the included species should be transferred to the Hylobiinae. Moreover, the name Trachodinae (LeConte, 1876) is a synonym of Acicnemidinae (Lacordaire, 1866). In so far as is now known, the Acicnemidinae are an Old World group whose present great proliferation of species is in the Indo-Pacific area.

It should be noted here, also, that the genus *Ancylocnemis* Marshall, now listed in the Trachodinae in "Coleopterorum Catalogus," should be transferred to the Anthonominae and evidently placed near *Bradybibastes.* When Marshall described the genus, he placed it in the Anthonominae, but in 1932:344, he incorrectly transferred it to the Trachodinae. Heller, 1930:5, considered it to belong to the Anthonominae. Although it may be shown eventually that *Ancylocnemis* is not a typical member of the

Anthonominae, it is obvious that it does not belong to the Acicnemidinae. During this study, I have examined only *Ancylocnemis sternalis* Marshall. It differs from the Acicnemidinae in facies, it lacks postocular lobes, it lacks the peculiar scaling along the metepisternal suture that is typical of the Acicnemidinae, its fore coxae are contiguous, the eyes are more frontal and the claws are appendiculate. *Ancylocnemis* species are known to attack fruits, and this is a habit characteristic of many Anthonominae but foreign to the Hylobiinae and the Acicnemidinae whose larvae are characteristically wood-borers.

The geographical distribution of the flightless Hylobiinae now under discussion is significant. They are distributed from northern California through Oregon, Washington, northwestern Idaho, British Columbia, Alaska and across the Aleutian Islands to Kamchatka.

These weevils are inhabitants of forest ground litter and are also found in and under driftwood. Comparatively few specimens have been collected, and the ranges of the species remain to be determined.

Key to the North American Associates of Sthereus

1. Anterior margin of prosternum entire, not emarginate; pronotum without a median carina; length less than 3.5 mm. ---------- STHEREUS Motschulsky
   Anterior margin of prosternum deeply, conspicuously emarginate (somewhat resembling the formation found in some Cryptorhynchinae); pronotum with a narrow median carina; length usually greater than 3.5 mm. ---------- 2
2(1). Metasternum and ventrites one and two with large, deep, extraordinary excavations ---------- GASTROTAPHRUS Buchanan
   Metasternum and venter without any excavations ---------- 3
3(2). Antennal club elongate-ovate, less than one-half as broad as long, broadest near distal one-third; dorsum conspicuously multituberculate; legs densey squamose, femora each with a low, obtuse tooth within a cluster of setae, vestiture of coxae dense and conspicuous, anterior and middle coxae moderately densely squamose; metepisternum almost completely indistinguishable; distance between metacoxae less than median length of metasternum; first abdominal suture continued coarsely and conspicuously across middle of venter -------- LOBOSOMA Buchanan
   Antennal club stoutly ovoid, about three-fourths as broad as long, broadest at about middle; dorsum not tuberculate; legs finely setose, femora not toothed, coxae appearing bare and shiny (with only a few fine setae); underside sparsely setose; metepisternum distinct throughout its length; distance between metacoxae greater than median length of metasternum; first abdominal suture obsolete across middle of venter ---------- PHILOSTRATUS Zimmerman

It was not my intention when I began this research to describe new American categories, because for nearly 30 years I have confined my work to the faunas of the Pacific Ocean. However, I have found that the generic name *Sthereus* has included two American genera. One of these is unrecognized in literature and requires description. Hence, to record more fully the results of my research, the genus *Philostratus* is described below.

The following are the American genera and species that should be transferred from the "Trachodinae" to the Hylobiinae:

Genus *Sthereus* Motschulsky

Motschulsky, 1845:373.

Lacordaire, 1863:374, footnote, there in synonymy under *Trachodes*.

Buchanan, 1936:178.

Bedel, 1884:92, footnote. *Stereus* [*sic*]

Type-species: *Sthereus quadrituberculatus* Motschulsky, designated by Buchanan, 1936:178.

Key to the American Species of Sthereus

1. Pronotum without any fascicles of erect setae; tubercles on elytra low and poorly developed, most prominent on interval three and obsolescent or absent on intervals five and seven; intervals three, five and seven not or only feebly elevated between the fascicles ---------- QUADRITUBERCULATUS Motschulsky

2. Pronotum with four fascicles of erect setae on a transverse line cephalad of middle, the two fascicles on the disc most prominent and those at the sides obsolescent in some examples; tubercles on elytral intervals three, five and seven very prominent and the intervals prominently elevated between the tubercles ----- ---------- MULTITUBERCULATUS Buchanan

In addition to these species, *Sthereus borealis* Motschulsky, 1845:374, and *Sthereus fasciculatus* Motschulsky, 1845:374, both from Kamchatka, which are presumed to belong to *Sthereus,* but which I have not seen, should follow the American species into the Hylobiinae. It is possible, however, that these species belong to *Philostratus*. LeConte, 1876:190, said that he had received from Col. Motschulsky, specimens of *Sthereus ptinoides* under the name *Sthereus fasciculatus,* and this statement might be construed to mean that *fasciculatus* is a synonym of *ptinoides* (placed herein under *Philostratus*). This has evidently led to the incorrect listing of such synonymy in "Coleopterorum Catalogus." Motschulsky, 1845:374, said that he had been confused by the two species, but he noted that on *fasciculatus* the pronotum is "in medio caniculato," whereas *ptinoides* has a fine median carina on the pronotum. I have examined the Motschulsky specimens mentioned by LeConte in his collection at the Museum of Comparative Zoology at Harvard, and they are *ptinoides* as we now recognize it. Unfortunately, the specimens lack locality data.

Sthereus multituberculatus Buchanan, 1936:179.

Oregon (type locality: Astoria) to Alaska.

Sthereus quadrituberculatus Motschulsky, 1845:375, pl. 7, fig. 4, I-V.

Buchanan, 1936:178.

Trachodes quadrituberculatus (Motschulsky) Mannerheim, 1852:355.

LeConte, 1876:190.

Northern California to Alaska (type locality: Sitka).

Mannerheim (1832:355) said that this species had been found on bark and in logs of pine.

Genus *Philostratus* Zimmerman, NEW GENUS

Rather similar to *Lobosoma,* but dorsum not tuberculate and vestiture less dense, especially on ventral surfaces which are not hidden by vestiture as they are on *Lobosoma.*

Head with eyes moderately convex, coarsely faceted, the individual facets conspicuously convex; interocular distance fully as great as greatest breadth of base rostrum. *Rostrum* with several fine carinae behind antennal insertions; mandibles tri-dentate, but the basal tooth small and much less conspicuous than the prominent middle and anterior teeth; upper margin of scrobe directed to lower corner of eye; without any long, tactile setae on sides just behind bases of mandibular sinuses or on underside behind maxillary sinuses and none on prementum. *Antennae* sparsely setose, inserted just beyond middle of rostrum; apex of scape nearly reaching eye (separated by about one-fourth the diameter of club of scape from eye on type, viewed from side); funiculus with first two segments elongate, first segment somewhat longer and much stouter than second, second as long as three plus four combined, segments three to seven subspherical; club compact, stout, ovoid, about three-fourths as broad as long, broadest near middle, about as long as preceding four funicular segments. *Prothorax* rather loosely squamose, punctate, finely granulate; dorsum moderately uneven, with a fine, longitudinal, median carina and a sulcus along basal margin; subapical constriction well developed on sides and continued across prosternum; sides with moderately developed postocular lobes which partly cover the eyes when head is retracted, and the inner edges of the lobes behind the eyes armed with a fringe of setae (post-ocular vibrissae) which extend over the posterior edges of the eyes when head is retracted. *Scutellum* concealed. *Elytra* ovate, without humeri, setose and squamose, ten-striate, stria ten well impressed only basad of metacoxae and at apex but marked by a continuous line of punctures between these areas; stria nine continuous to base. *Wings* absent. *Legs* slender; femora not dentate, hind pair reaching about to apex of ventrite four; tibiae slightly sinuous, strongly uncinate; tarsi long and slender, hind tarsi more than half as long as tibiae, sparsely setose dorsally and much less densely setose beneath than *Lobosoma* (obviously not "spongy"), third tarsal segment deeply cleft, the sinus reaching near base (on type the inner lobe is smaller than outer lobe on hind tarsus). *Sternum* sparsely, finely setose; coxae and trochanters appearing mostly bare, with only a few fine setae; anterior margin of prosternum conspicuously, broadly, arcuately emarginate in front, the disc broadly and shallowly concave; the anterior and posterior intercoxal processes well separated and the coxal cavities thus distinctly coalescent; procoxae large, strongly protuberant; mesosternum with intercoxal process steep, subtruncate behind, the distance between the mesocoxae equal to one-third or more of the length of the metasternum at its narrowest point between meso- and metacoxae; division between mesepisternum and mesepimeron visible; mestasternum with narrowest point between meso- and metacoxae subequal to breadth of a mesocoxa; metacoxae eye-shaped, obviously transverse (less than three-fourths as long as broad on type); metepisternum distinct throughout its length, but the suture well defined only basad of middle. *Venter* with intercoxal process of first ventrite broadly arcuate, its breadth between the metacoxae greater than median length of mesosternum; median length of first ventrite subequal to lengths of ventrites two and three combined; its narrowest point behind the metacoxae one-half the median length; suture between first and second ventrites obsolete on disc, well impressed laterad, the other sutures vertical and very strong; ventrite two as long next to the elytra as ventrite three plus about one-half of four; ventrite five subequal in length to ventrite three plus four; thickened ventral margin of pygidium visible beyond ventrite five in male.

Type-species: *Sthereus (Trachodes) ptinoides* (Germar) Buchanan.

Philostratus is derived from the Greek character of that name and is masculine.

The concave anterior margin of the prosternum removes this genus easily from *Sthereus* and associates it with *Lobosoma* and *Gastrotaphrus*. *Gastrotaphrus* is easily distinguished by its unusual underside as well as other features. *Philostratus* is much like *Lobosoma,* but there are numerous differences between the two, and the more obvious differences are summarized in the key. *Lobosoma* has a narrower sternum with the intercoxal processes of the meso- and metasternum and first ventrite all narrower and more accuminate. The hind coxae are more nearly round on *Lobosoma* (only about one-fifth broader than long), but they are obviously more transverse on *Philostratus*.

Philostratus ptinoides (Germar) Zimmerman, NEW COMBINATION.

Trachodes Ptinoides Germar, 1824:327. Schoenherr, 1836:513. Fahraeus, 1843:408. Mannerheim, 1853:240, *"Var. b."* LeConte, 1876:190.

Pissodes ptinicollis Sturm, 1826:184, *nomen nudum.*

Sthereus ptinoides (Germar) Buchanan, 1936:178.

Northern California to the Aleutian Islands, Alaska (type locality: Unalaska), and Kamchatka (new record).

The Kamchatka record is based upon my determination of two males in the U. S. National Museum which bear the following data: Peptropaulski, Kamtschatka, June and July, 1882, L. Stejneger collector. These specimens appear to come within the range of variability of *ptinoides,* and the aedeagi are similar.

Mannerheim, 1853:240, and Van Dyke (1921:166) say that this weevil breeds in or is found under driftwood.

It is possible that *Sthereus borealis* Motschulsky and *Sthereus fasciculatus* Motschulsky, from Kamchatka, belong here. See the discussion after the key to *Sthereus,* above.

Genus *Lobosoma* Buchanan

Buchanan 1936:180.

Type-species: *Trachodes horridus* Mannerheim, by original designation and monotypy.

Lobosoma horridum (Mannerheim) Buchanan, 1936:180.

Trachodes horridus Mannerheim, 1852:345. LeConte, 1876:190. Schenkling and Marshall, 1937:2.

Aparopion horridus (Mannerheim) Heyden, 1879:167.

Aparapion [*sic*] *horridus* Mannerheim, Leng, 1920:320.

Oregon to Alaska (type locality: Sitka).

W. W. Baker, as recorded by Buchanan (1936:180), stated that he collected this weevil "by sifting debris from the forest floor or close to the edges of timber."

Genus *Gastrotaphrus* Buchanan

Buchanan, 1936:180.

Type-species: *Gastrotaphrus barberi* Buchanan, by original designation and monotypy.

Gastrotaphrus closely resembles *Lobosoma,* and the dorsum of each is conspicuously multituberculate. The conspicuously foveate sternum and abdomen of *Gastrotaphrus* makes possible the easy separation of the two groups, and I have used this feature as an easily observed character in the generic key. However, I would not have considered the foveae by themselves as of generic importance, but there are other differences between *Gastrotaphrus* and *Lobosoma,* and some of the more obvious features may be assembled as follows:

Club of antenna elongate-ovate; eyes about ten facets broad; all coxae conspicuously squamose overall, internally and externally; femora with a low tooth beneath and the hind pair reaching about to apex of elytra; third tarsal segment with the distal emargination (as seen from beneath) extending basad of middle ---------- LOBOSOMA

Club of antenna stoutly ovoid; eyes only about five facets broad; coxae with squamae confined to a patch on mesal areas of pro- and mesocoxae only, bare elsewhere; femora not toothed, the hind pair reaching about to middle of ventrite five; third tarsal segment (viewed from beneath) with the distal emargination not reaching the middle ----------.---------- GASTROTAPHRUS

Gastrotaphrus barberi Buchanan, 1936:181.

California (type locality: Eureka), and probably also Oregon, Washington and British Columbia.

It is probable that this species has been taken by sifting ground litter in redwood forests.

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